Vegetation Management Plan (VMP)

City of Amesbury, MA

2013-2017

Prepared By:

City of Amesbury – Department of Public Works
39 South Hunt Road
Amesbury, MA 01913

&

Comprehensive Environmental Inc.
21 Depot Street
Merrimack, NH 03054
800.725.2550

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Statement of Goals and Objectives

This Vegetation Management Plan (VMP) establishes criteria for the City of Amesbury to control vegetation along municipal Rights-of-Way (ROW) in compliance with the ROW Management Regulations (333 CMR 11.00) as promulgated by the Massachusetts Department of Agricultural Resources.

The primary objective of this VMP is to provide the public with safe and unobstructed ROWs while utilizing an Integrated Pest Management (IPM) program and minimizing reliance upon herbicides. Vegetation maintenance is necessary along public ROWs to control unwanted vegetation that may pose a public nuisance, result in safety hazards or cause damage to structures and infrastructure. The goal of the program is to control undesirable vegetation while maximizing environmental protection and minimizing herbicide use. The plan's success will be based upon periodic monitoring and inspection which is expected to result in:

- Protection of the public and environment;
- Control of target vegetation;
- Reduction in volume of chemical application;
- Reduction in frequency of chemical application; and
- Protection of sensitive areas.

This VMP will serve as a technical guidance for individuals involved in ROW vegetation management and as an accessible source of information for residents and public officials.

Target Vegetation

Target vegetation will be limited to species that pose a safety hazard, compromise infrastructure, are a public nuisance, or are invasive and may have detrimental effects on natural resources.

Hazard Vegetation

Hazard vegetation poses a risk to public safety and represents vegetation that impedes movement along public ways. Hazard vegetation may obscure sightlines, obscure signs, obscure vehicular movement, create windfall hazards, block storm drains and cause winter shading (causing ice/reduced melting). Hazard vegetation may include, but is not limited to, trees, tree limbs and shrubs.

Nuisance Vegetation

This category includes vegetation that could cause problems to the general public, employees or contractors and generally include poisonous and noxious plant species. Nuisance vegetation poses a risk to safety and health often due to dermal contact with plants that are poisonous, heavily-thorned or densely colonized. Target vegetation in this category is primarily Poison Ivy and other nuisance vegetation within 10 feet of the edge of pavement.

Detrimental Vegetation

Detrimental vegetation includes grasses and woody plants that are destructive or compromise the function of infrastructure by growing in cracks along the roadway, pavement/bridge joints, medians/traffic islands, and drainage structures/drainageways.

Invasive Vegetation

Invasive species can colonize a space and virtually eliminate the biodiversity of an area. This can result in changes in wildlife due to habitat change, impede natural hydrologic function and cause an overall change in the natural functions of an area. Managing invasive species via mechanical means can be ineffective and/or detrimental depending on the species, making the colonization stronger. In these situations, the use of an herbicide may be necessary. Working in conjunction with the Conservation Commission and/or private groups, there may be opportunities to remove invasive vegetation and encourage the growth of native species. Vegetation listed on the MA Department of Agricultural Resources, *Massachusetts Prohibited Plant List,* is included in this category.

Vegetation Management Methods & Actions to Minimize Herbicides

Vegetation management methods will include both non-chemical techniques and chemical application where necessary, and an IPM Program to minimize herbicide use. Vegetation management may involve the following methods:

- Physical Control – street-sweeping, sealing cracks, repaving.
- Mechanical Methods – hand-cutting, mowing, selective trimming.
- Chemical Control –foliar herbicide treatments and cut stump surface treatment.

The control methods selected will be chosen based on a variety of factors and with the goal to achieve a long-term, low maintenance vegetation management program.

Physical Control

Physical control methods will rely primarily on sustainable landscape methods and pavement maintenance.

Pavement Maintenance

Pavement maintenance will consist of sealing cracks and general ROW repairs including repaving and installing new sidewalks. The City completes routine street-sweeping yearly, and in certain areas after heavy precipitation and after construction, as needed.

Sustainable Landscapes

Sustainable landscape techniques include alternative methods for new development and reconstruction that minimize roadside maintenance and promote active planting of competing vegetation. This may include:

- Encouraging the use of seeding and planting specifications that require less maintenance;
- Planting of native trees, shrubs, wildflowers and grasses to compete and replace undesirable species;

- Allowing private abutters to maintain ROWs, where applicable; and
- Encouraging the use of Low Impact Development (LID) techniques including residential raingardens.

Mechanical Control

Mechanical control methods may include hand cutting, mowing, and/or selective trimming.

Hand Cutting

Hand cutting consists of the mechanical cutting of target species using chain saws and brush saws. Target species are cut as close to the ground as practical. Hand cutting is used in order to protect environmentally sensitive sites. It is also used on target vegetation greater than twelve feet in height. Hand cutting is used on those restricted sites where terrain, site size or sensitivity renders mowing impossible or impractical. Hand cutting may be practiced at any time during the year.

Mowing

Mowing consists of the mechanical cutting of target vegetation using push mowers, large rider mowers, rear deck mowers, brush mowers, edgers and line trimmers. Selection of specific equipment is based on terrain, target vegetation size and equipment availability. Mowing will be used in areas where terrain and target stem size permit safe and efficient use of the above machinery. Mowing will be the principal method for vegetation control along road shoulders and where herbicide use is prohibited. Mowing will be conducted seasonally when weather conditions allow.

Selective Trimming

Selective trimming consists of the mechanical pruning of the tops of encroaching limbs of tall trees that may hamper roadway access. Trimming will be accomplished using aerial lifts via trucks or tractors, or if terrain or obstructions prevent equipment access by climbing crews.

Chemical Control

Chemical control methods involve foliar treatment and cut stump surface treatments.

Foliar Treatment

Foliar treatments involve the selective application of an herbicide diluted in water to the foliage. Several types of equipment for foliar treatments may be used. These could include: backpack sprayers, hand-held pump sprayers or a motorized truck-mounted sprayer. Foliar treatments with backpack and hand-held pump sprayers are used on low-density target vegetation. The herbicide solution will be diluted to the lowest possible percent that will provide effective control of target species. Motorized application equipment may be used for foliar treatment on areas where the vegetation density is high and the use of a backpack spray may not be as effective.

These foliar applications will take place when plants are in full leaf and actively growing, and in accordance with the product label. When used according to the City's application program, foliar treatments are an effective and efficient method to control the whole

target plant. Controlling the whole target plant reduces the potential of resprout from live root systems.

Cut Stump Surface Treatment

Cut stump treatments consist of mechanical cutting of target species using chain saws, followed by herbicide treatment applied with a squirt bottle, a hand pump sprayer, or painted on the freshly cut surface of the stump. The cutting procedure is identical to that outlined in the Hand Cutting section of this VMP. Cut stump application can be effective during the dormant period, however, may not be effective during times of sap flow (i.e., maples and birches during the months of February through early April), as flowing sap will limit the herbicide from being absorbed into the stump down to the roots. Certain types of herbicide formulations are limited to freshly cut stumps to be effective.

Monitoring – All roadsides will be surveyed prior to any scheduled treatment program. Monitoring will be conducted by foot and/or by vehicle. Monitoring of areas may result from requests from the public. All monitoring records will be maintained by the City.

Maintenance – All roads will be cleaned using a street sweeper. Cracking asphalt and sidewalks and other ROW defects will be repaired. The use of groundcover will be used, where appropriate, to assist in the prevention of vegetation growth. The use of groundcover can sometimes help outcompete and/or crowd out poison ivy and some invasive species.

Record Keeping – A log of areas surveyed will be maintained by the City for future planning and reference. Areas maintained either through physical repair, mechanical or chemical control will be recorded.

Control Tactics – The decision to use one or a combination of vegetation control techniques will depend on the site-specific situation. The control tactics selected will control target vegetation in the most environmentally and efficient manner.

Table 1. Summary of Control Methods

Target	Conditions	Control Methods
Grasses	Where landscape, traffic and safety conditions allow	Physical Control Mechanical (mowing)
Low Growth Species	Where landscape, traffic and safety conditions allow Species not poisonous	Physical Control Mechanical (mowing)
Low Growth Species	Landscape prevents mowing Species not poisonous	Mechanical (hand cutting) Chemical (depending on situation)
Grasses & Low Growth Species	Within cracks or joints Safety eliminates use of mechanical methods	Chemical (foliar)
Low Growth Species	Poison Ivy or other nuisance species within 10 feet of ROW	Chemical (foliar)[1]
Tall Growth	Individual trees or branches	Mechanical (hand cutting

		or selective trimming)
Tall Growth	Plants >12 feet and landscape allows	Mechanical (hand cutting)
Tall Growth	Plants >12 feet and species are persistent and/or invasive	Chemical (cut stump surface treatment)[1]

[1]Except in no spray areas.
[2]Low Growth – herbaceous growth (generally 3-4' high, grasses, vines, short woody growth)
Tall Growth – woody vegetation greater than 4'

Justification of Herbicide Use

This plan focuses on the minimization of herbicide use within ROWs. Vegetation management along public ways is necessary to control unwanted vegetation that pose a public nuisance, obstructs views and creates a traffic or pedestrian hazard. By following the proposed vegetation management methods and IPM approach discussed in this plan, physical and mechanical treatment controls most of the plants that interfere with traffic, visibility and safety. Chemical controls are necessary in management situations where topography, access, growth rate, species specific factors, worker safety, or environmental/social concerns limit the potential for control by physical or mechanical methods.

Chemical controls are often the preferred method or only method of control for plants which pose a health hazard for the technician in the field, either directly or as a function of location. Poison Ivy, for example, is extremely hazardous to handle, biologically resistant to mechanical removal and can pose a serious threat. Individuals attempting to control curbside plants and weeds by pulling them or trimming them can put a technician in danger from traffic and is generally not effective for long-term control.

In many situations, poisonous plant species such as Poison Ivy cannot be effectively controlled by mowing. Due to the low growing nature of Poison Ivy, and the fact that it grows along stolons and reproduces both by fine and fibrous rhizomes as well as by berry, it is nearly impossible to control through cultivation, hand pulling or mowing at the height generally used in roadside mowing operations. Moreover, the climbing characteristics of this plant over stone walls, tree trunks and guardrails make mechanical control out of the question for safety and economic reasons. In some locations, the use of herbicides may help develop herbaceous communities that out-compete Poison Ivy and otherwise promote natural control of these plants.

Mowing will control most grasses. Herbicide applications, however, are used where mechanical control is not feasible due to location, stem density and/or height. Although grass is more often a desirable vegetative cover along public ways, in areas where it is a target, it is difficult and sometimes dangerous to remove by mechanical treatment methods. These areas include, but are not limited to, cracks in asphalt, along guardrails, paved traffic islands, sidewalks and curbs. In these instances, grass can be identified as target vegetation.

Woody vegetation (low and high growth species) growing along the ROW that interfere with pedestrian or vehicle safety is controlled by a variety of techniques. Pruning or ground cutting using hand tools or chain saws primarily controls large woody vegetation. Depending upon the species of plant removed and its proximity to other vegetation, these

stumps may be treated with an herbicide to prevent resprouting, although they often can be removed mechanically.

Small woody plants that are growing along the road shoulder in an accessible location will usually be mowed along with the roadside grass. Woody plants that are growing over obstacles that would impede the mower, or have a viney growth habit and are not practical to hand cut or chip, or that grow very rapidly, can be controlled through the use of the foliar application of herbicides.

Finally, invasive species elimination is sometimes warranted to promote the growth of a more diverse mix of vegetative species, reduce sedimentation and improve natural drainage and wildlife habitat. Invasive species are rarely controlled with ground cutting techniques and generally need to be eliminated via herbicide application to restore an area.

Identification of Sensitive Areas

Sensitive areas are defined within 333 CMR 11.00 as areas within ROWs in which public health and environmental concerns warrant special protection to further minimize risks of unreasonable adverse effects of herbicides. These include: public groundwater sources, Class A public surface water sources, associated surface water bodies, tributaries, Class B drinking water intakes, private wells, state listed species habitat, wetlands, waters over wetlands, riverfront areas, certified vernal pools, inhabited areas, and agricultural areas. The Amesbury Conservation Commission will be consulted to assist in identifying sensitive areas. For the purposes of identification, sensitive areas can be separated into two categories: areas that are readily identifiable in the field, and areas that are not readily identifiable in the field.

Sensitive areas that are not readily identifiable in the field include public groundwater supplies, private water supplies and public surface water supplies. Additional sources available to identify these areas include:

- Massachusetts Department of Environmental Protection (MassDEP) Water Supply Maps (1:25,000).
- MassDEP Wetlands Conservancy Maps (scale 1:1,000).
- Municipal maps and records including those from the Health Department to identify private water supplies.
- Regional Planning Agency maps and records.
- U.S. Fish and Wildlife Service National Wetlands Inventory Maps.
- Ortho photo Information – MassDEP (1:5,000).
- Massachusetts Division of Fisheries and Wildlife Natural Heritage and Endangered Species Program.
- Available MassGIS maps.

Sensitive areas that are readily identifiable in the field include surface waters, wetlands, rivers and agricultural areas. The methods utilized to identify these sensitive areas will include:

- MassGIS spatial data maps to locate any of these sensitive areas that may already be identified on these maps.
- Prior to commencement of herbicide application operations, the treatment crew will be provided the marked topographic map.
- The treatment crew will visually survey the area to be treated for any additional sensitive areas, and where the ground is bare or has limited re-growth from previous herbicide applications.
- Sensitive areas will be identified and marked in the field prior to application.

The following is a description of how the sensitive areas will be identified for required protection:

- Consult appropriate reference materials and sources to determine the precise locations of sensitive areas.
- Mark boundaries of each area on U.S. Geological Survey (USGS) topographical maps, CAD (Computer Aided Drafting) drawings or GIS output.
- Prior to commencement of herbicide application operations, treatment crew will be provided with above maps identifying sensitive areas.
- Appropriate Department of Public Works staff will deploy in advance of the main herbicide application operation to locate and flag these boundaries or the boundaries of the appropriate no-spray areas.
- No-spray areas will be identified with red or orange paint on the curb, or in roadway at start and finish of no-spray areas, or with orange flags marked in the same manner, as appropriate.

Table 2. Sensitive Area Restrictions

Sensitive Area	No-Spray Areas	Limited Spray Areas	Where Identified
Wetlands and Water Over Wetlands	Within 10 feet	10 – 100 feet; 12 months must elapse between applications; Selective low pressure, using foliar techniques or basal or cut-stump applications	YOP Maps and identify on site
Certified Vernal Pool	Within 10 feet	10 feet to the outer boundary of any Certified Vernal Pool Habitat; 12 months must elapse between applications; Selective low pressure, using foliar techniques or basal or cut-stump applications	YOP Maps and identify on site
Public Ground Water Supply	Within 400 feet (Zone I)	Zone II or IWPA (Interim Wellhead Protection Area which is the Primary Recharge Area); 24 months must elapse between applications; Selective low pressure, using foliar techniques or basal or cut-stump applications	YOP Maps

Public Surface Water Supply	Within 100 feet of any Class A public surface water source	100 feet to the outer boundary of the Zone A; 24 months must elapse between applications; Selective low pressure, using foliar techniques or basal or cut-stump applications	YOP Maps
	Within 10 feet of any tributary or associated surface waterbody located outside of the Zone A	10 feet to the outer boundary of the Zone A; 24 months must elapse between applications; Selective low pressure, using foliar techniques or basal or cut-stump applications	
	Within 100 feet of any tributary or associated surface waterbody located within the Zone A of a Class A public surface water source		
	Within a lateral distance of 100 feet for 400 feet upstream of any Class B Drinking Water Intake	Within a lateral distance of between 100 -200 feet for 400 feet upstream of intake; 24 months must elapse between applications; Selective low pressure, using foliar techniques or basal or cut-stump applications	
Private Water Supply	Within 50 feet	50 – 100 feet; 24 months must elapse between applications; Selective low pressure, using foliar techniques or basal or cut-stump applications	YOP will list and identify on site
Riverfront Area	Within 10 feet from mean annual high-water line	10 feet from the mean annual high water line and the outer boundary of the Riverfront Area; 12 months must elapse between applications; Selective low pressure, using foliar techniques or basal or cut-stump applications	YOP Maps and identify on site
Agricultural and Inhabited Areas	N/A	0 – 100 feet; 12 months must elapse between application; Selective low pressure, using foliar techniques or basal or cut-stump applications	Identify on site
State-listed Species Habitat[1]	No application within habitat area except in accordance with a Yearly Operational Plan approved in writing by the Division of Fisheries and Wildlife		YOP Maps

[1]Includes Estimated Habitats of Rare Wildlife and the Priority Habitats for State-Listed Species as shown on the most recent edition of the Massachusetts Natural Heritage Atlas prepared by the Natural Heritage and Endangered Species Program (NHESP) within the Massachusetts Division of Fisheries and Wildlife.

Operational Guidelines for Applicators Relative to Herbicide Use

As required by regulations, application to roadside ROW requires a valid Category 40 pesticide certification from the Department of Agricultural Resources. The applicator(s) will be a City employee and/or certified contractor working under the supervision of the City of Amesbury Project Manager. All applicators and their supervisors will have a copy of the VMP and Yearly Operational Plan (YOP) with them at all times for reference during the herbicide application. In addition to the applicable rules and regulations, applicators will adhere to the following operational guidelines. Only herbicides listed on the current ROW Sensitive Area Materials List will be used.

Weather

Herbicide application will be restricted during certain adverse weather conditions, such as rain or wind. Herbicide applications will not be conducted during periods of moderate or heavy rainfall. Foliar applications can be effective in light mist situations; however, any measurable rainfall that creates leaf runoff will wash the herbicide off target vegetation. If foliar applications are interrupted by unexpected rainfall, the treatment will not resume until the rain ends and active leaf runoff has ceased. Cut-stump treatments will not be conducted during measurable precipitation events. Cut-stump treatments will cease during measurable precipitation and will not resume until precipitation has ceased.

To minimize off-target drift, the applicator will comply with the following restrictions:

- During periods of wind, which are strong enough to bend the tops of the main stems of trees on the roadside, the applicator will periodically observe the application of the foliar treatment to insure that there is no significant movement of the herbicide. If the applicator can see the herbicide moving off target, the application will immediately stop until the wind has subsided enough to permit further applications.
- Herbicide solution to be used for a foliage application may contain low drift agents. Low drift agents may be added to the foliage herbicide solutions, as per the low drift agent label. In moderate wind conditions, as per label recommendations, more low drift agent may be added at the discretion of the applicator to control increased drift.
- Foliar treatment will not be made to target vegetation that exceeds approximately twelve feet in height.

Equipment Calibration

Foliar application equipment will be calibrated prior to application and in accordance with manufacturer's recommendations. Foliar application equipment will be calibrated to maintain pressures not exceeding sixty pounds per square inch at the nozzle. Applicator nozzles will be adjusted to apply a coarse spray pattern.

Cut-stump treatment squirt bottle applicators or hand pump sprayers will be adjusted to deliver an herbicide solution that minimizes herbicide splash and overspray.

Sensitive Area Restrictions

In defined sensitive areas, there exists a no-spray area where herbicide use is prohibited, and a limited spray area where herbicide use is allowed, under certain conditions. In places around sensitive areas where herbicide use is allowed, only the minimum labeled rate of application for the control of target species can be applied.

Qualifications of Individuals Developing and Submitting a Plan

Mr. Robert Desmarais is the Director of the City of Amesbury Department of Public Works. He has significant public works and roadway maintenance experience and will oversee plan implementation.

Comprehensive Environmental Inc. (CEI) is a civil and environmental engineering firm that has served municipal, state, and federal agencies throughout the New England area

for nearly 25 years. Ms. Stephanie Hanson is a Project Manager and Principal Scientist at CEI specializing in the areas of wetlands, water resources, stormwater, environmental permitting and resource area protection. Ms. Hanson is a Certified Ecologist and LEED Green Associate with a B.S. in Environmental Geoscience and M.S. in Environmental Science.

Alternative Land Use Options

Every effort will be given for alternative land use options. However, there are specific criteria to be met for adoption of alternative land use options. The alternative land use option must control the nuisance vegetation in a similar manner, environmentally and effectively, as allowed in this VMP.

Remedial Plan to Address Spills and Related Accidents

All mixing and loading of herbicides will be conducted at the facility where the herbicides are stored, either at a secure City facility if the application is completed by a City employee, or offsite if the application is being completed by an outside contractor. Only the amount of herbicide necessary to carry out the vegetation control, based on monitoring results, will be mixed to ensure that there will be no waste and to minimize potential problems. The vehicles carrying out the spray operations will be equipped with a bag of absorbent, activated charcoal, leak-proof containers, a broom and a shovel, in case of minor spills. A clipboard log of the herbicides on the vehicle will be kept on the vehicle. Herbicide labels and fact sheets will be carried on-site by the applicator.

As soon as any spill is observed, immediate action will be taken to contain the spill and protect the spill area. The cause of the spill must be identified and secured. Spill containment will be accomplished by covering the spill with absorptive clay or other absorptive material or, for large spills, building clay or soil dikes to impede spill progress. Until completely remediated, the spill area will be protected by the placement of barriers and by the delineation of the spill area by crew members. If a fire is involved, care will be taken to avoid breathing fumes from any burning chemicals.

Minor spills will be remedied by soaking up the spill with adsorption clay or other adsorptive material and placing it in leak proof containers, removed from the site, and disposed of properly. Dry herbicides, such as granulars, will be swept up or shoveled up directly in leak proof containers for proper disposal. All contaminated soil will be placed in leak proof containers, removed from the site, and disposed of properly. Activated charcoal will be incorporated into the soil at the spill location per label instructions. Any minor spill will be reported to the Massachusetts Department of Agricultural Resources, Division of Crop & Pest Services.

Major spills will be handled in a similar manner as minor spills, except in cases where the spill cannot be contained and/or removed by the crew. In this case, the MassDEP Incident Response Unit and the Massachusetts Department of Agricultural Resources, Division of Crop & Pest Services must be contacted.

Emergency first responders (including, but not limited to, fire and police) should be immediately notified of a major spill and/or any size incident deemed a possible risk to public health, safety and the environment.

MassDEP will be contacted when there is a spill of a regulated quantity, regardless of major or minor spill status and in accordance with 310 CMR 40.0000 Massachusetts Contingency Plan.

In the event of a spill, information on safety precautions and clean up procedures may be gathered from the following sources:

- Herbicide label
- Herbicide MSDS sheet
- Herbicide Manufacturer

DOW	800-992-5994
Dupont	800-441-3637
Monsanto	314-697-4000
NuFarm	877-325-1840

- Massachusetts Pesticide Bureau Main # 617-626-1720
  Michael McClean 617-626-1781
- Massachusetts Department of Environmental Protection
  Emergency Response 888-304-1133
- Department of Public Health
  Environmental Toxicology Program 617-624-5757
- Massachusetts Poison Control Center
  24-Hour Hotline 800-222-1222
- City of Amesbury Public Works Department 978-388-8116
- City of Amesbury Town Garage 978-388-0037
- City of Amesbury Fire Department 978-388-1333 or 911
- City of Amesbury Police Department 978-388-1212 or 911
- Chem-Trec 800-424-9300
- National Pesticide Information Center 800-858-7378
- National Animal Poison Control Center 888-426-4435

Monitoring Plan

On an annual basis, the City will evaluate the success of the vegetation management program. The goal of this monitoring plan is to evaluate the relative success of vegetation control efforts. Following treatment, after an appropriate period of time, treatment areas will be revisited. The survivorship or regrowth of nuisance vegetation will be recorded and evaluated periodically to determine whether the program is meeting its goals. Any changes will be reflected in the next year's YOP, as applicable.

Notification Procedures

Once approved, a copy of the VMP will be provided to the Mayor, Board of Health and Conservation Commission. Upon approval of the VMP and YOP and 21-days in advance of the application of herbicide to a ROW, the City will notify the Department, Board of Health, water supplier, Mayor and Conservation Commission of the application. Notification will include: method and location of application, herbicide fact sheet, EPA registration number for herbicide, and applicator contact information. Additionally, at least 48-hours prior to a ROW herbicide application, the applicant will publish, in a local newspaper, the following information: methods and location of pesticide application, approximate dates of herbicide application, name of herbicide(s) to be used, description/purpose of application and contact information for designated individual representing the City whom citizens can contact.